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February 27, 2005

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Examiner: Naoko Slack

Subject: Response to Office Action  
Application 09/769,879  
Title: Gravity Balance Frame

Dear Examiner:

Your letter post-marked November 29, 05 has been reviewed. We have filed a Request for Continued Examination. Our claims were rejected based on “ remarks ... not convincing” raised on the Section titled “Detailed Action”. The following are point-by-point responses to the concerns from your office:

**I. The (conventional) tension-only is adequate, ... use of additional known system ... is considered redundant:**

We do not dispute the fact that the conventional tensional-only systems would be adequate for code specified seismic-induced lateral forces. Once, however, the seismic level exceeds the code specified design level, the safety margin will be decreased drastically, (see Item (c) on page 2 of Patent Application, Attachment 1). On the contrary, “Gravity Balance Frame”, does not experience a decrease in safety margin when the seismic levels exceed code specified design level, (see Item (c) on page 3 of Patent Application, Attachment 1). Therefore, the instant invention is not a redundant, because it is a system that can withstand seismic levels that exceed code specified design level

**II. If the ... system has never been used, how would its inclusion contribute to form a simple and reliable structural system?**

Since the “Gravity Balance Frame” system has never used before, it therefore satisfies the “novelty” and “unobviousness” of the patent laws.

It is simple because tension-only braces are the simplest to install, based on applicant’s knowledge and experience (see attached curriculum vitae, Attachment 3). Furthermore, all persons involved in the trade of building design or construction would agree.

It is reliable since gravity is constant presence on earth, and through theoretical study, the system is a non-collapse, stable system as previously explained (see page 8 and Figure 8c of Patent Application, Attachment 1).

### **III. No Structure is presented in the claims to differentiate this system from the conventional V-shaped brace system**

As explained in our response to "Office Action" on 4/23/05, the braces for the conventional system are bulky and stocky, while the instant invention employs slender braces, (see page 2 of the 4/23/05 response, Attachment 2). This is also implied in the claims that tension-only braces are used, since it is well understood in our trade of building designers that tension-only braces are always slender.

### **IV. Applicant's claim language fails to state the structural features that differentiate the instant invention from the conventional tension-only system**

As explained in our response to "Office Action" on 4/23/05, the new system utilizes the "gravity potential energy", while the conventional system uses the "strain energy" (see page 2 of the 4/23/05 response, Attachment 2). And this also appears in the first sentence of the applicant's claim (see page 9 of Patent Application, Attachment 1).


As explained in our original application the material and construction procedures are conventional, but the utilization of gravity load is unique, (see pages 2 & 3 of Patent Application, Attachment 1).

Claims 1-6 are also rejected under 35U.S.C. 102 as being clearly anticipated by article "Procedure and Commentary for Braced Frame"

As explained in our response to "Office Action" on 4/23/05, NEHRP did not state "gravity potential energy" being used in earthquake resistant design, rather the conventional systems use strain energy, i.e., yielding of its components, (see page 3 of the 4/23/05 response, Attachment 2).

As explained in the same article, the distinct features and novelty of present application are based on combining three conventional components to form an ingenious system, which has never before been conceived. Any one of the three components separately by itself is well known to all structural engineers. However, by putting together all three, they form an innovative, simple and reliable structural system never before applied as described in the original application, (see page 1 of the 4/23/05 response, Attachment 2).

Sincerely

  
Ma-Chi Chen, Ph.D.

#### Attachments

1. Portions of the original Patent Application relevant to the current responses are underlined.
2. Portions of the "Response to Office Action on 4/23/05" relevant to the current responses are underlined.
3. Curriculum Vitae